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# Impact of Technology on Employment

Technology, specifically information technology (IT), affects employment in three ways:

1. Level of employment, or unemployment
2. Nature or type of work performed
3. Location of work

## Level of Employment

In the mid-1980s, INPUT predicted that information technology would dramatically alter the future employment picture. We introduced the concept of HUMATICS (Human/Automation Interfaces) and advised clients to pay attention to trends in this area.

Recently, a number of events and recognition of underlying trends in the media have brought this subject to the surface again. Mr. Percy Barnevik, president of ABB, the world's largest power engineering group, was interviewed recently in the *Financial Times*. In four years, since the formation of ABB by the merger of Asea with Brown Boveri, ABB has increased revenues by 60% while shrinking its work force by 50,000—and it plans to continue this trend. Mr. Barnevik feels that other companies and industries must slim down in order to be competitive.

In Mr. Barnevik's view, high rates of unemployment are not the result of recession so much as the consequence of increases in productivity and competitiveness. (This is particularly relevant to Europe where many organizations have been "protected" in national markets and have thus grown "fat" in employment terms). Mr. Barnevik forecasts that "the proportion of Europe's labor force employed in manufacturing and business services will fall from about 35% today to 25% in 10 years' time—and to 15% a decade later." He also predicts sharp declines in public sector payrolls.

As INPUT has already done, he likens this revolution to that in agricultural employment earlier this century, where increased automation dramatically increased productivity while decimating employment. He rightly asks the question, "Where will all these people go?"

Mr. Barnevik sees the potential for today's unemployment rates of around 10% becoming 20% to 25%. As he points out, this is "social dynamite."

## Nature of Employment

This potential for unemployment is exacerbated by a corresponding potential for a two-tier structure among the employed. We are using systems to restructure organizations, to "flatten them out," to "remove the middle," to "de-skill" certain jobs or replace them, to "go direct" to customers or suppliers rather than through intermediaries. Already, companies like Hewlett-Packard have two categories of staff: full-time staff and fully employed "flex" staff who receive no benefits or security. ICL

in Europe is sending increasing numbers of staff to work from their homes. IT enables this to happen.

Recent data from a survey carried out by AMA in the U.S. show that one of the major reasons for continued "downsizing" in employment in the U.S. is increasing automation. And plans to downsize employment are more prevalent now in U.S. organizations than at any time in recent years.

The key area of impact in the next 10 years will be the "white collar" or office work force. This is where automation will have an ever increasing affect through new systems and structures. Business re-engineering or process change is largely focused in making dramatic improvements in productivity in the handling of information.

## Location of Employment

This does not bode well for office space requirements. In INPUT's opinion, the office space in cities like New York and London may never be filled because technology will (a) reduce the overall requirements for large offices and (b) allow smaller offices to be located in much less expensive and much more attractive locations. We should remember, after all, why offices were located in these large cities in the first place!

INPUT believes that work is like water; it flows downhill to the lowest cost location commensurate with quality, where cost includes cost of distribution as well as manufacturing.

In the 1970s and 1980s we revolutionized manufacturing through several processes. Firstly, containerization enabled goods to be shipped around the world very rapidly. If necessary, goods could be produced in Singapore one day and be in New York in two days through the use of air cargo containers. If you could wait a little longer, they could be there in a few weeks through road, ship, and/or rail. Previously it took months to move goods around the world—and the potential for loss or damage was high because of the handling involved.

Secondly, manufacturers codified their processes so that they could be moved. They built the training programs that allowed them to establish "green field" manufacturing facilities very quickly. Certainly very large, capital-intensive plants, such as refineries, aluminum plants, and rolling mills, were less susceptible to such moves, but note the success of the mini-mills.

Now, through electronic networks, we have the means to move "white collar" work, i.e., clerical or knowledge work, around the world in the same manner. It is already happening within the U.S. as organizations move offices from high-cost areas such as New York and Silicon Valley.

But it is also beginning to happen on a more global scale. For example, a major European airline has moved its accounting operations to India, and a very large U.S.-based manufacturer has moved its computer operations to India. (If anyone needs help in doing this, INPUT and its Indian partners can assist in the process!)

Of course, there is one very important countervailing trend. That is the increasing amount of regulation, legislation, and litigation. In California, for example, over 1,000 new laws went into effect on January 1, 1993. Keeping up with these is bound to increase employment. So maybe we have found some value in having lawyers after all! But on the other hand, perhaps this will simply accelerate the relocation of labor and increased use of contracting, part-time, and "outsourced" alternatives to full-time work forces.

We continue to feel that the information technology industry needs to pay more attention to these HUMATICS issues than it does. After all, workers are voters, voters elect representatives, representatives make laws!

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INPUT, 1280 Villa Street, Mountain View, CA 94041-1194 (415) 961-3300